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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,037	08/09/2001	Hwan-Chul Rho	P56539	2495

7590

11/04/2003

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EXAMINER

PERRY, ANTHONY T

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/925,037

Applicant(s)

RHO ET AL.

Examiner

Anthony T Perry

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 7/31/03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 7-20 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Response to Amendment*

The Amendment, filed on 7/31/03, has been entered and acknowledged by the Examiner.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2 and 4-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamauchi et al. (US 6,351,061).

Regarding claims 1-2, Yamauchi teaches a cathode comprising a base metal 2 and an electron emissive material layer 3 attached on the base metal 2 (Fig. 1). Yamauchi teaches that the electron emissive material layer 3 includes a surface roughness measured from a distance between a highest point and a lower point of the surface of the electron emissive material layer being at most 15 microns (col. 5, lines 15-19). This range includes the range of less than or equal to 5 microns. Yamauchi further teaches that if the difference between the highest and lowest point is 10 microns or less that an even better current density distribution can be obtained (col. 5, lines 20-22).

Regarding claim 4, Yamauchi teaches that the thickness of the electron emissive material layer is 70 microns (col. 4, lines 45-49).

Regarding claim 5, the Examiner notes that the claim limitation that “the electron emissive material layer being attached on said base metal by one method selected from the group

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consisting essentially of printing and deposition“ is drawn to a process of manufacturing which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113). Therefore, it is the position of the examiner that it would have been obvious to one of ordinary skill in the art that the electron emissive material layer disclosed by Yamauchi is at least a fully functional equivalent to the Applicant's claimed electron emissive material layer as evidenced by Yamauchi's suggestion of all of the Applicant's claimed structural limitations.

Regarding claim 6, the Examiner notes that the claim limitation that “the electron emissive material layer being attached to said base metal by a screen printing method“ is drawn to a process of manufacturing which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113). Therefore, it is the position of the examiner that it would have been obvious to one of ordinary skill in the art that the electron emissive material layer disclosed by Yamauchi is at least a fully functional equivalent to the Applicant's claimed electron emissive material layer as evidenced by Yamauchi's suggestion of all of the Applicant's claimed structural limitations.

***Allowable Subject Matter***

Claim 3 is allowed.

The following is a statement of reasons for allowance: the references of the prior art of record fails to teach or suggest the combination of the limitations as set forth in claim 3, and

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specifically comprising the limitation of the electron emissive material layer having a density of 2 to 5 mg/mm<sup>3</sup>. The best prior art of record teaches that the density of the electron emissive material layer is 0.8 mg/mm<sup>3</sup>.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee, and to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Arguments***

Applicant's arguments filed 7/31/03, with respect to the restriction have been fully considered but are not persuasive.

With regards to the Applicant's argument that the examiner has failed to prove a prima facie case of a serious burden, the Examiner disagrees.

As specifically stated in MPEP § 803, "For purposes of the initial requirement, a serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation of separate classification, or separate status in the art, or a different field of search as defined in MPEP § 808.02."

As stated in the previous office action, in order to establish reasons for insisting upon restriction after distinctness has been demonstrated, must show by appropriate explanation that the following condition is held: there is separate classification. This shows that each distinct subject has attained recognition in the art as a separate subject for the inventive effort, and also a separate field of search. (MPEP § 808.02 A) It is noted that the examiner has asserted that the inventions of Group I and Group II are distinct and that both groups are separately classified.

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Therefore examiner properly satisfies the criteria for establishing undue burden in accordance with MPEP § 808.02 (A).

The separate classification proves that a different field of search is warranted. The different field of search is proof of serious burden.

With regards to the arguments that claims 7-9 have features of group II and are dependent from claim 1 which includes features of group I, the Examiner agrees. However, as indicated by the preambles and the included manufacturing steps, the claims are directed to a method of manufacturing a cathode. Since the claims have been shown to be distinct and serious burden has been established by the separate classification and different field of search, in accordance with MPEP § 808.02 (A), the restriction is deemed proper.

Applicant's arguments, see page 9, filed 7/31/03, with respect to the rejection of claims 1, 2, 5, and 6 under 35 U.S.C. 102(b) as being anticipated by Derfler et al. (US 4,559,281) have been fully considered and are persuasive. Accordingly the rejection has been withdrawn.

Applicant's arguments filed 7/31/03, with respect to the rejection of claims 1, 2, 4, 5, and 6 under 35 U.S.C. 102(e) as being anticipated by Yamauchi et al. (US 6,351,061) have been fully considered but are not persuasive.

In response to the argument that the Yamauchi reference does not anticipate the ranges of rough layer being 8 or less and 5 or less microns, the examiner disagrees. As stated above the Yamauchi reference specifically states that the range of the rough layer is 15 or less and more preferably 10 or less microns and therefore anticipates the claimed narrower ranges. The Examiner agrees that no specific examples falling within the claimed ranges are disclosed, and that a case by case determination must be made as to anticipation.

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The MPEP § 2131.03 states “In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with “sufficient specificity to constitute an anticipation under the statute.” What constitutes a “sufficient specificity” is fact dependent. If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with “sufficient specificity” to constitute an anticipation of the claims.”

Although the specification of the current application teaches that the range be 8 or less and more preferably 5 or less microns, it does not provide evidence of any unexpected results within the claimed narrower range. Accordingly, the narrower ranges are considered to be disclosed with “sufficient specificity”, therefore, the claimed ranges are anticipated by Yamauchi.

With regards to the Applicant’s arguments that the process steps in claims 5 and 6 should be given patentable weight since the process steps imply a structure according to MPEP 2113, the Examiner disagrees.

The MPEP 2113 states, “The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garner*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding “interbonded by interfusion” to limit structure of the claimed composite and noting that terms such as “welded,” “intermixed,” “ground in place,” “press fitted,” and “etched” are capable of construction as structural limitations.)”

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The MPEP lists process terms and simply states that such terms “are capable of construction as structural limitations.” It is the position of the Examiner that the claimed product can be defined by process steps other than process steps claimed, including the process steps taught by Yamauchi. The claimed manufacturing process steps are not found to impart structural characteristics to the final product different than the final product as disclosed by Yamauchi. The Examiner agrees that certain process steps may lead to a differently structured final product and in which case are considered patentable. However, the Applicant has not provided teachings to suggest that such a differently structured product, as compared with the product disclosed by Yamauchi, is produced.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Anthony Perry* whose telephone number is (703) 305-1799. The



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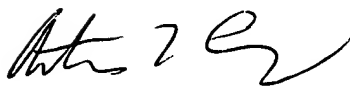
examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (703) 305-4794. The fax phone number for this Group is (703) 308-7382.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [Anthony.perry@uspto.gov].

*All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.*

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.



Anthony Perry  
Patent Examiner  
Art Unit 2879  
October 30, 2003

  
**VIP PATEL  
PRIMARY EXAMINER**